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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,662

03/23/2004

Tadao Kikumoto

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EXAMINER

AZAD, ABUL K

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

04/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/806,662		KIKUMOTO, TADAO	
	Examiner		Art Unit	
	ABUL K. AZAD		2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/13/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on December 6, 2007.
2. Claims 1-44 are pending in this action.
3. Applicant's arguments, have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-5, 19-39 and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Katoh (US 4,406,204).

As per claim 1, Katoh teaches, "a vocoder system comprising":

"formant detection means for detecting formant characteristics of a first musical tone musical tone signal" (col. 7, lines 8-32);

"musical tone signal input means for inputting a second musical tone signal that corresponds to specified pitch information" (col. 10, lines 55-67, here A input is as first musical tone signal and B input is as second musical tone signal);

"division means for dividing the second musical tone signal into a plurality of frequency bands, the respective center frequencies of which have been fixed" (Table 1);

“setting means for setting modulation levels corresponding to each of the frequency bands based on the formant characteristics and formant control information with which the formant characteristics detected by the formant detection means are changed” (col. 7, lines 32-53); and

“modulation means for modulating a level of a signal of each of the frequency bands based on the modulation level set in the setting means” (col. 19, lines 46-67).

As per claim 2, Katoh teaches, “wherein the formant detection means comprises a filter” (col. 7, lines 25-32, here “voice selector” is as “filter”).

As per claims 4 and 5, Katoh teaches, “wherein the division means comprises a filter” (col. 8, lines 18-30).

As per claims 19-27, Katoh teaches, “wherein the setting means sets the modulation levels based on pitch information, the formant characteristics and the formant control information” (col. 10, line 55 to col. 11, line 67).

As per claims 28-36, Katoh teaches, “wherein the setting means stores a formant change table that changes the formant non-uniformly and sets the modulation levels that correspond to each of the frequency bands based on the change table” (col. 10, line 55 to col. 11, line 67).

As per claim 41, Katoh teaches, “wherein the first musical tone signal is produced by a male voice or a female voice” (col. 6, lines 65-68).

As per claim 42, Katoh teaches, “wherein the level of the signal of each of the frequency bands modulated by the modulation means is an amplitude of the signal” (col. 7, lines 46-53).

As per claim 43, Katoh teaches, "wherein, in the modulation means, the center frequencies of the frequency bands are maintained as fixed in the division means" (Table 1).

As per claims 37-39, they are analyzed and thus rejected for the same reasons set forth in the rejection of claims 1 and 2.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 6-9 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh as applied to claims 1 above, and further in view of well-known prior art.

As per claims 3, 6-9 and 40, Katoh does not explicitly teach Fourier transform. Official Notice is taken on well-known Fourier transform. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Fourier transform in the invention of Katoh to detect formant and to dividing frequency band because that would be a conventional way to detect the formant conveniently.

8. Claims 10-18 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh as applied to claim 1 above, and further in view of Suzuki et al. (US 5,691,496).

As per claims 10-18 and 44, Katoh does not explicitly teach, set the modulation levels by interpolation processing based on the formant characteristics and the formant control information. However, Suzuki teaches set the modulation levels by interpolation processing based on the formant characteristics and the formant control information (col. 8, lines 6-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use interpolation as teaches by Suzuki because Suzuki teaches his invention provides a well balanced synthesized musical tone is output (Abstract).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(571) 272-7599**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Patric Edouard**, can be reached at **(571) 272-7603**.

Any response to this action should be mailed to:

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Or faxed to: **(571) 273-8300**.

Hand-delivered responses should be brought to **401 Dulany Street, Alexandria, VA-22314** (Customer Service Window).

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 10, 2008
Azad/

/Abul K.

Primary Examiner
Art Unit 2626